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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

HARRISON, CHANTE E

ART UNIT	PAPER NUMBER
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2672

DATE MAILED: 03/12/2004

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/894,824

Applicant(s)

WANG ET AL.

Examiner

Chante Harrison

Art Unit

2672

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 June 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-25 and 27-30 is/are rejected.
- 7) ☒ Claim(s) 11,26 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 June 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5. 6) ☐ Other: _____

DETAILED ACTION

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference characters "110" and "20" (i.e. at page 14 of the specification) have both been used to designate the computer. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "190" has been used to designate both "output peripheral interface" and "video interface". A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-6, 8, 14-18 and 21 are rejected under 35 U.S.C. 102(b) as being anticipated by Von Ehr et al., U.S. Patent 5,594,855, 1/1997.

As per independent claim 1, Von Ehr discloses calculating the sharp points of a digital ink file (col. 7, ll. 20-24); defining segments between the sharp points by mathematical expressions (i.e. bezier curves) (col. 5, ll. 1-5; col. 7, ll. 24-25); and storing information about the sharp points and the mathematical expressions as a backbone spline of the digital ink file (col. 8, ll. 13-18).

As per dependent claim 2, Von Ehr discloses combining the backbone spline with information about the digital ink file to create a contour curve for the digital ink file (col. 4, ll. 58-67).

As per dependent claim 3, Von Ehr discloses the information about the digital ink file comprises thickness information (i.e. pressure information) (col. 8, ll. 50-53).

As per dependent claim 4, Von Ehr discloses denoising the digital ink file prior to combining the backbone spline with the thickness information (col. 6, ll. 62-66; col. 4, ll. 58-67).

As per dependent claim 5, Von Ehr discloses denoising the digital ink file prior to combining the backbone spline with the information about the digital ink file (col. 6, ll. 62-66; col. 4, ll. 58-67).

As per dependent claim 6, Von Ehr discloses the sharp points comprise points in the digital ink file that deviate the most from straight lines (col. 7, ll. 22-23).

As per dependent claim 8, Von Ehr discloses the digital ink file comprises a raw data ink trace (col. 4, ll. 50-10).

As per dependent claim 14, Von Ehr discloses combining the backbone spline with information about the digital ink file to create a contour curve for the digital ink file (col. 6, ll. 62-66; col. 4, ll. 58-67); and displaying the contour curve (col. 4, ll. 58-67; Fig. 1).

As per dependent claim 15, Von Ehr discloses displaying the contour curve comprises separating the contour curve into a plurality of straight segments (col. 5, ll. 64-67), and rendering the plurality of straight segments (Fig. 1; col. 4, ll. 58-67).

As per dependent claim 16, Von Ehr discloses displaying the contour curve further comprises applying an antialiasing effect to each of the straight segments (col. 6, ll. 65-67), wherein the antialiasing effect comprises an antialiasing filter that filters edges of an image more than the center of the image (col. 9, ll. 3-7).

As per dependent claim 17, Von Ehr discloses displaying the contour curve further comprises aligning the ends of the straight segments by averaging pixels located at the ends of the segments (col. 7, ll. 35-40).

As per independent claim 18, Von Ehr discloses an antialiasing component that filters edges of an image more than the center of the image (col. 9, ll. 3-7).

As per dependent claim 21, Von Ehr discloses the antialiasing component utilizes a GUPTA-SPROULL algorithm to provide the filtering effect (col. 9 ll. 3-20).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Von Ehr et al., U.S. Patent 5,594,855, 1/1997.

As per dependent claim 19, Von Ehr discloses the antialiasing component filters an image (col. 8, ll. 17-21; col. 9, ll. 3-15). But fails to specifically disclose the image filtered based upon human perception characteristics. It would have been obvious to one of ordinary skill in the art to incorporate filtering based upon human perception characteristics with the disclosure of Von Ehr because he discloses that the image is filtered based on its width, where width is a representation of pressure, which is disclosed as also being represented by one of a plurality of image data including human perception characteristics (col. 8, ll. 15-25).

As per dependent claim 20, Von Ehr discloses the human perception characteristics comprises contrast sensitivity (i.e. color gradation) (col. 8, ll. 17-21).

7. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Von Ehr as applied to claim 1 above, and further in view of John Ahlquist et al., U.S. Patent 5,361,333, 11/1994.

As per dependent claim 7, Von Ehr fails to disclose the sharp points comprise points at which curvature reverses, which Ahlquist discloses (Fig. 4). Von Ehr teaches sharp points are those points having high curvature variation. Ahlquist teaches sharp points are those points at which curvature reverses (Fig. 4). It would have been obvious to one of ordinary skill in the art to incorporate Ahlquist's disclosure of sharp points including points at which curvature reverses with the disclosure of Von Ehr because Von Ehr teaches sharp points are those points having high curvature variation, in which a reversal of curvature would yield the highest variation of curvature.

8. Claims 9-10, 12-13, 27-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Von Ehr as applied to claim 1 above, and further in view of Michael Schuster, U.S. Patent 6,208,35 B2, 3/2001.

As per dependent claim 9, Von Ehr discloses defining the segments between the sharp points by mathematical expressions comprises subdividing segments into subsegments (col. 5, ll. 64-67), and defining the subsegments by mathematical expressions (col. 5, ll. 66-67). Schuster discloses subdividing segments that exceed a threshold into subsegments (col. 8, ll. 35-64), which Von Ehr fails to disclose. It would have been obvious to one of ordinary skill in the art to incorporate Schuster's disclosure of subdividing segments that exceed a threshold into subsegments with the disclosure of Von Ehr because Von Ehr teaches evaluating the on and off curve trajectory points of the input device to correctly mimic the physical pen behavior.

As per dependent claim 10, Von Ehr discloses the threshold comprises a segment having a turn angle greater than a defined limit (col. 7, ll. 20-25) as does Schuster (col. 10, ll. 43-50).

As per dependent claim 12, Von Ehr discloses the threshold further comprises a defined error tolerance for the mathematical expression (col. 6, ll. 37-40), as does Schuster (Fig. 16 "315").

As per dependent claim 13, Von Ehr discloses the threshold comprises a defined error tolerance for the mathematical expression (col. 6, ll. 37-40), as does Schuster (Fig. 16 "315").

As per independent claim 27, Von Ehr discloses separating a digital image file into a plurality of line segments (col. 5, ll. 64-67); altering each of the line segments to generate a displayable image file for each of the line segments (Fig. 6), each displayable image file including a set of pixel values defined for imaging the image file (Fig. 5); determining whether adjacent line segments exceed a threshold (col. 7, ll. 10-25). Von Ehr fails to disclose if the adjacent line segments exceed the threshold, adding a leaking pixel value to the adjacent line segments to smooth the ends of the line segments, which Schuster discloses (col. 18, ll. 18-45).

Von Ehr teaches editing splines by inserting or deleting points (col. 7, ll. 65-67). Schuster teaches filling gaps between curve endpoints with replacement curves (col. 18). It would have been obvious to one of ordinary skill in the art to incorporate Schuster's disclosure of adding a leaking pixel value to the adjacent line segments to smooth the ends of the line segments with the disclosure of Von Ehr because Von Ehr teaches editing splines by inserting or deleting points to improve curve fit and expansion.

As per dependent claim 28, Von Ehr discloses displaying the contour curve further comprises applying an antialiasing effect to each of the straight segments (col.

6, ll. 65-67), wherein the antialiasing effect comprises an antialiasing filter that filters edges of an image more than the center of the image (col. 9, ll. 3-7).

As per dependent claim 29, Von Ehr in view of Schuster discloses determining whether adjacent line segments exceed a threshold comprises determining whether an angle formed between the line segments exceeds a particular angle (col. 7, ll. 15-25; col. 5, ll. 10-40).

As per dependent claim 30, Von Ehr in view of Schuster discloses the particular angle is 45 degrees (col. 5, ll. 20-25).

As per dependent claim 31, Von Ehr in view of Schuster discloses averaging gray values of pixels adjacent to the leaking pixel to form an averaged gray value, and assigning the averaged gray value to the leaking pixel (i.e. filtering the shape of adjacent segments, where the shape data may be represented by color and intensity) (col. 7, ll. 1-4; col. 8, ll. 15-23).

As per dependent claim 32, Von Ehr in view of Schuster discloses averaging the pixel values for the same pixel to form an average gray value, and assigning the averaged gray value to the same pixel (i.e. filtering the shape of adjacent segments, where the shape data may be represented by color and intensity) (col. 7, ll. 1-4; col. 8, ll. 15-23).

As per dependent claim 33, Von Ehr in view of Schuster discloses averaging the pixel values for the same pixel to form an average gray value, and assigning the averaged gray value to the same pixel (i.e. filtering the shape of adjacent segments, where the shape data may be represented by color and intensity) (col. 7, ll. 1-4; col. 8, ll. 15-23).

9. Claim 22-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Von Ehr as applied to claim 18 above, and further in view of Foley et al., "Computer Graphics: Principles and Practice", 2nd edition, 1996.

As per dependent claim 22, Foley discloses at least one central filter, configured to filter the image adjacent to the center of the image, and that filters at a first threshold; and at least one outer filter, configured to filter the image adjacent to an edge of the image, and that filters at a second threshold higher than the first threshold (pp. 138, Fig. 3.60), which Von Ehr fails to specifically disclose.

Von Ehr teaches filtering along a line using as a threshold a maximum radius that is adjusted.

It would have been obvious to one of ordinary skill in the art to incorporate multiple filters with differing thresholds with the disclosure of Von Ehr because Von Ehr teaches scanning along a line to filter the digitized stroke multiple circular filters that utilize a radius value as a threshold.

As per dependent claim 23, Von Ehr discloses the second threshold is set based upon human perception characteristics (col. 8, ll. 18-22), as does Foley (pp. 140, Para 2).

As per dependent claim 24, Von Ehr in view of Foley discloses the human perception characteristics comprise contrast sensitivity (col. 8, ll. 18-22).

As per dependent claim 25, Foley discloses the number of central filters is one, and the number of outer filters is two (pp. 138, Fig. 3.60), and the outer filters are arranged on opposite sides of the outer filter and so that each outer filter is adjacent to a different edge of the image (pp. 138, Fig. 3.60), which Von Ehr fails to disclose. However it would have been obvious to one of skill in the art to incorporate central and outer filters adjacent to opposite edges as taught by Foley with the disclosure of Von Ehr because Von Ehr teaches

10. Claims 11 and 26 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chante Harrison whose telephone number is 703-305-3937. The examiner can normally be reached on Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mike Razavi can be reached on 703-305-4713. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

March 1, 2004

Chante Harrison
Examiner
Art Unit 2672



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